

# **Framingham State College Commuter Rail Station Feasibility Study**

## **EXECUTIVE SUMMARY**

### **Introduction**

The Massachusetts Bay Transportation Authority (MBTA) is evaluating the feasibility of extending commuter rail service along a spur off the MBTA Framingham/Worcester Line from downtown Framingham to the Framingham State College (FSC) campus. This study evaluates reactivation of commuter rail service along 1 to 1 ½ miles of the Fitchburg Secondary Line that extends northwest from the wye, just east of Framingham Station. The tracks and station site would be located along CSX track/right-of-way on this existing freight line. Service would extend to one of two potential sites for a transit station and parking garage on the FSC campus that are situated on existing parking lots owned by Framingham State College.

The study was conducted as a component of a larger study, the Worcester Commuter Rail Service Improvement Project. The goal of the overall project was to examine midday service improvements on the Framingham/Worcester commuter rail line (also known as the CSX Boston & Albany Line) through addition of a third operating track near CSX railyards in Framingham and Worcester.

### **Background**

Passenger service on the Fitchburg Secondary Line last operated in 1931. The Fitchburg Secondary Line extends northwest from the wye in downtown Framingham beyond Framingham Center at the Framingham State College campus, Route 9, and I-290 in Northborough. Potential future extension of commuter rail service on the Fitchburg Secondary Line, listed as the *Commuter Rail Line from Framingham to Leominster*, is a component of the Program for Mass Transportation, the MBTA's capital planning element for the year 2025. Commuter rail service on the Fitchburg Secondary Line was previously studied in 2001 for the *I-290/Northborough Commuter Rail Extension Feasibility Study*. Ridership forecasts developed in the study indicated that a station on the FSC campus, the furthest inbound station, would have the highest ridership of the prospective stations along the line.

Due to the proximity of the CSX rail line, Framingham State College (FSC) approached the MBTA about joint sponsorship of this feasibility study to collocate a station site and a parking facility. The college's interest would be in providing transportation alternatives for students commuting to campus and additional student parking. The proposed parking garage facility would be jointly used by MBTA patrons and by FSC undergraduate students. The college is experiencing a severe parking shortage, as 61% of the colleges undergraduate students are commuters, the vast majority of which arrive by automobile. Fall enrollments for FSC totalled 6,156 graduate and undergraduate students, with 3,892 full-time undergraduates, of which 2,392



either live in off-campus housing or commute to school. Several parking lots accommodate commuter students, and two of the larger lots, the Maynard Road and Maple Street lots, are located adjacent to the CSX Fitchburg Secondary Line. The college would like to provide an additional 300 spaces within a new parking garage to be located at one of the two prospective sites: the Maynard Road parking lot off Salem End Road, south of Route 9, and the Maple Street parking lot south of campus, which is north of the Sudbury River and adjoins the FSC athletic fields.

## **Project Setting**

The Fitchburg Secondary Line extends roughly 37 miles from the wye with the Boston and Albany Line to connect with the Fitchburg Line in Fitchburg. The Fitchburg Secondary Line consists of a single-track structure, but consisted of two tracks at one time. Just north of the wye in Framingham, the line extends through North Yard, which is used by CSX for staging of trains. Passenger rail service last operated on this portion of the Fitchburg Secondary Line in 1937. Today, only freight service operates, with most of the service limited to the North Yard area, and one train per day going beyond this location. The line continues north, crossing under Mount Wayte Avenue, over the Sudbury River, and crossing at grade at Maple Street and Salem End Road, before crossing Route 9. The Fitchburg Secondary Line extending from the wye at Framingham Station north to Route 9 is classified by CSX as part of the Framingham North Yard, which confers a 10 mile per hour (mph) maximum operating speed within yard limits.

The two prospective transit station/parking garage sites are both situated along the east side of the Fitchburg Secondary Line, with Maynard Road the northerly of the two sites. The Maynard Road site is proximal to the Salem End Road grade crossing, the main FSC campus and College Center, Route 9, and commercial areas and multi-family housing off Route 9. The lot currently accommodates 430 spaces on 3.2 acres, and the grade of the lot is substantially lower than the academic areas of the campus. The Maple Street lot is more remote from, and ½ mile south of, the main campus. This lot has less capacity and accommodates 286 spaces on 3 acres. Access from campus to the lot is provided by a shuttle bus service. The FSC Street athletic fields are located on the opposite (west) side of the tracks from the Maple Street lot, and undeveloped lands owned by the Massachusetts Department of Conservation and Recreation property along the Sudbury River border on the site to the south. The remaining areas to the north and east along Maple Street consist of residential neighborhoods.

## **Proposed Project**

### **Transit/Station Platform Concepts**

The biggest impediment to reactivation of rail service is the current classification of this segment of the Fitchburg Secondary Line as yard track. Track improvements and changes in signalization to accommodate commuter rail service on the Fitchburg Secondary Line would be based on the



outcome of negotiations with CSX. However, the following assumptions have been made regarding infrastructure improvements required to accommodate passenger service.

The project would involve track improvements to bypass the North Yard train staging area. Reclassification of the yard limits for the passenger track from its current location at Route 9 south to where the bypass track extends around the North Yard and ties back in to the Framingham wye would also be required. A separate siding track would be extended on the west side of the yard to the western wye track with the Framingham/Worcester Line to allow freight trains to access the yard on a segregated track. Approximately 2,800 feet of bypass track for passenger trains on the east side of the yard and roughly 600 feet of siding track would be constructed. This would allow operating speeds for passenger trains to be increased from 10 mph to operating speeds of 30 to 45 mph, dependent upon the outcome of negotiations with CSX. Two new interlockings along the bypass would be created, with two new control points that are situated north of the wye with the Framingham/Worcester Line and north of North Yard. A potential platform west of the wye could also be constructed to accommodate boardings and transfers at Framingham Station.

To the north, the crossing bridge at Mount Wayte Avenue has adequate width to accommodate a second track, but a single track to accommodate both freight trains and passenger trains is proposed in this area.

The commuter rail extension will consist of improvements to the existing Fitchburg Secondary Line track structure, the signal system (or new signal system), and track-related infrastructure improvements. This work will be performed within the existing CSX right-of-way, with the exception of where the station proper ties into the parking garage on FSC property.

In the area of the FSC campus, the freight track would be relocated around a siding to be located largely on the existing track for each of the station sites, which would diverge from the main track at a wye and a control point for the station. For the Maynard Road station, approximately 900 feet of new track would be constructed, and roughly 2,200 feet of track would be relocated to provide a passing track for freight and a separate station siding. The relocated freight track would start south of Maple Street, and a new station at Maynard Road would require a grade crossing for passenger trains at Maple Street.

For the Maple Street station, provision of a passing track for freight and a station siding will require construction of roughly 980 feet of passing track for freight trains, and approximately 3,500 feet of relocated freight track. The Maple Street site will also require a new track crossing on the existing bridge over the Sudbury River, and the platform will extend south and will end before the Sudbury River Bridge.

At both sites, use of a 600-foot high-level platform that meets ADA requirements is proposed. Use of a standard platform length of 800 feet would require spanning over the Sudbury River at Maple Street site and would require significant modifications to or replacement of an



embankment retaining wall at Maynard Road site. At Maple Street, a curved platform would be needed to meet the existing track curvature. The use of a curved platform at Maple Street would require greater clearance from the platform, which would be problematic for meeting ADA gap requirements.

The total costs associated with track improvements, signalization, structural improvements, culverts/drainage, utilities, and the station are estimated to total approximately \$7.83 million at the Maynard Road site and approximately \$7.971 million at the Maple Street site. These costs do not include costs associated with parking, rolling stock, or layover facilities.

### Parking Garage Concepts

The proposed parking facility at each site would consist of a three-level garage structure that would be constructed over the existing parking lot. This structure would be sized to provide a total of roughly 800 spaces for FSC commuters and approximately 200 to 210 spaces for MBTA patrons at grade level. For the purposes of the study, assumptions regarding the number of parking spaces needed for the MBTA and FSC have been made. Estimates of FSC parking were based on coordination with FSC, and ridership information from the *I-290/Northborough Commuter Rail Extension Feasibility Study* was used to estimate on-site MBTA patron parking. However, the final number of parking spaces would be negotiated between MBTA and FSC.

The parking garages would segregate parking for MBTA and FSC. MBTA parking would be provided at-grade, and FSC parking would be distributed between at-grade and upper deck levels. The parking garages would provide for drop-off/pick-up areas and use of separate entry/exits for commuters and students.

The parking at the Maynard Road site would occupy approximately 80,000 square feet, with 210 spaces for MBTA commuters and 810 spaces for FSC. Access to and from the garage would be from Maynard Road. The topography and layout of the site would allow construction of a pedestrian bridge from the Maynard Road sidewalk to the upper levels of the garage between the College Chapel and the Facilities Building.

At the Maple Street, site, the garage would have a footprint of approximately 81,000 square feet and would provide 202 spaces for MBTA patrons and 795 spaces for FSC students. Access to and from the site would be off of Maple Street, and a shuttle pick-up/drop-up location may be established off Maple Street for the campus shuttle service. Alternatively, the college could elect to have the shuttle circulate through the garage as a convenience and for added security.

Costs associated with the parking garage are estimated to total approximately \$20.655 million at the Maynard Road site. A parking garage at Maple Street would cost approximately \$20.243 million.



## **Feasibility and Environmental Impacts**

### **Transit Operations**

The Fitchburg Secondary Line is owned by CSX Corporation, and presently, the MBTA has no rights over this track. The accommodation of passenger service on the Fitchburg Secondary Line would require that the yard limits for North Yard be modified, and would require new operating agreements with CSX. Conflicts with freight movements at North Yard would represent the biggest operational issue, as the North Yard is one of two freight rail yards in Framingham along the Boston and Albany Line, the most heavily used freight service line in New England.

Service levels along the line would depend on the outcome of negotiations with CSX and ridership demands. Extension of the commuter rail service to Framingham State College could be accomplished through either an extension of the service along the Framingham/Worcester Line from Boston or dedicated service on the Fitchburg Secondary Line. Under current operating conditions, approximately half of the trains to Framingham Station (20 of 40 daily total trips) continue on to Worcester. If service was extended to Framingham State College, some portion of the remaining trains that do not continue on to Worcester could continue on to service Framingham State College.

Alternatively, a dedicated service could be implemented through the use of diesel multiple units, which are self-propelled and may be appropriate for shorter distances, rather than the standard push-pull locomotive-hauled coaches. The MBTA is starting to consider the use of DMUs for other portions of the transit system, and use of DMU equipment would require specialized maintenance facilities, which the MBTA does not currently have.

The third option to extend commuter rail service to FSC would be increased service to Framingham, which would continue on to service Framingham State College. This would require new operating agreements with CSX.

In addition to the potential for commuter rail service expansion to FSC, the campus is presently serviced by the LIFT bus transit system operated by the Town of Framingham, including routes between FSC and downtown Framingham. Other possible transit options include adapting this service to accommodate an intermodal FSC facility/parking garage, with or without the commuter rail extension.

The environmental impacts associated with the track improvements are summarized below:

- Implementation of commuter rail extension would not involve direct land use impacts, as track improvements would be performed within the CSX right-of-way.
- No additional grade crossings would be required, with the exception of a Maple Street grade crossing required for the Maynard Road site.



- With an existing noise level of 65 dBA, project noise in excess of 60 dBA would constitute an impact, according to Federal Transit Administration (FTA) Noise Impact Criteria. Two single-family homes would be expected to be the only noise-sensitive receptors experiencing noise levels in excess of 60 dBA.
- FTA vibration criteria identify 80 VdB as the impact threshold for residential land uses for infrequent rail events. As many as nine homes along the track are anticipated to experience vibration impacts.
- For a station site at Maple Street, the second track would cross over the Sudbury River on the existing bridge, and the platform would extend to the edge of the river. This will require work within the 200-foot riverfront protection area. Work at the Maynard Road site would require work within the 100-foot buffer zone for Baiting Brook, but would not involve alterations to resource areas.

### **Parking Garage**

Considerations for the new parking garage include additional parking capacity provided, accessibility, costs, and environmental impacts. Of the two prospective sites, the Maynard Road site would provide less additional parking capacity than the Maple Street site at a slightly higher cost. However, the Maynard Road site is more accessible than the Maple Street site and would involve lesser environmental impacts for site development.

Both sites would accommodate approximately 200 spaces for use by MBTA commuters. The Maynard Road lot now accommodates more student parking and would provide less expansion in parking for FSC students. A three-level garage at the Maynard Road lot would provide a total of approximately 1,020 spaces and a net increase of 380 spaces for FSC, since the existing lot now provides 430 spaces. A three-level garage at the Maple Street site would provide a total of approximately 997 spaces and an additional 509 spaces for FSC students, since the existing lot currently accommodates 286 spaces. Use of the Maple Street site would result in an additional 129 spaces for FSC students, when compared to the additional capacity provided by the Maynard Road site.

Development of the Maynard Road site would also be slightly more expensive. Total costs for the track, station, and parking garage (excluding rolling stock and layover facilities) would be approximately \$28.485 million at Maynard Road. This compares to approximately \$28.214 million for development of the Maple Street site.

However, the Maynard Road site would provide better site access with almost direct access from Route 9. This site is expected to generate more MBTA ridership, which would make this site more cost-effective, since the costs to upgrade the line segment between these two sites is marginal. The Maynard Road site would also be more accessible for use by FSC students, and would be the preferred option for commuter students. The existing Maynard Road lot normally fills up first, due to the proximity of the lot to the main campus. The grade differences at the





Maynard Road lot can be taken advantage of to substantially reduce the impact of a parking deck on abutting properties. This grade difference can also be used to create a pedestrian walkway and reduce the uphill climb for students walking from the parking lot.

The Maynard Road site is also more compatible with this type of station/parking lot development, given its location near the FSC campus and adjoining commercial and multi-family housing developments off Route 9. This site also presents more opportunities for transit-oriented development. Station development at the Maple Street site would be less compatible with the adjoining land uses that consist primarily of residential neighborhoods along Maple Street.

Use of either site may ameliorate traffic impacts on neighborhoods affected by commuters accessing the Framingham Station in downtown Framingham. However, development of a station site on the FSC campus will require further traffic investigations to determine the impacts on local neighborhoods and already congested intersections adjoining Route 9.

Other environmental considerations for use of the Maynard Road and Maple Street sites include the following:

- Subsurface construction for a garage foundation at the Maynard Road site will encounter fly ash that was disposed of under the asphalt cap at the existing lot. Any hazardous materials encountered would be handled in accordance with applicable federal and state regulations.
- The Maynard Road lot has been previously disturbed, and development on the site is not expected to affect historical or archaeological resources. The area of the Maple Street site may be archaeologically sensitive and may have greater potential for archaeological impacts. Development at the Maple Street site would require further archaeological investigations to assess potential impacts.
- Development of the Maple Street site for a parking garage would require fill within the 100-year floodplain that adjoins the Sudbury River. This work will also occur within the 200-foot riverfront protection area.

Development of a station site/parking garage on the Maynard Road site would be more advantageous from a MBTA ridership perspective. This site would also provide more convenient access to the FSC campus and would better serve commuter students. It also appears that this site is more compatible with station site/parking garage development and would involve lesser impacts on traffic, land use, and natural and cultural resources. The Maynard Road site for a potential station site/parking garage appears to be more suitable from both the MBTA's and FSC's perspectives and is recommended for further evaluation.